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(71)Applicant : SOFT 99 CORPORATION:KK

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(72)Inventor : TSUTSUMI KIYOHIRO

ISHII MAKOTO

HIDAKA RYUTARO

(54) POLISHING WATER-REPELLENT COMPOSITION FOR AUTOMOBILE

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a transparent, gelled composition excellent in stability, transparency, workability, glossiness and water-repellency by incorporating therein respectively specific amounts of a water-repellent resin, dimethyl polysiloxane, hydrophobic ultrafine silica and hydrophilic ultrafine silica which are surface-treated with an organosilicon compound, and a petroleum solvent.

SOLUTION: The composition is formed by blending: 0.01-10.000 wt.% (referred to as % hereunder) of a water-repellent resin which is soluble in petroleum solvents (e.g. petroleum resins, silicone resins); 5.00-25.00% of dimethyl polysiloxane having a viscosity (25°C) of 0.65-1,000,000 cSt; 5.00-25.00% of hydrophobic ultrafine silica and hydrophilic ultrafine silica which are surface-treated with an organosilicon compound, the amount of the hydrophilic ultrafine silica blended being 1.00% or more; and 40.00-89.99% of a petroleum solvent. The average size of the primary particles of the ultrafine silicas is preferably 5-12 nm. If necessary, the composition further comprises 0.50-10.00% of a modified silicone oil having a viscosity (25°C) of 10-20,000 cSt.

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CLAIMS

[Claim(s)]

[Claim 1] It is characterized by containing following component A-D, it carries out glazing for transparence gel automobiles, and it is a water repellent constituent.

A: Water-repellent resin meltable to a petroleum solvent (the loadings in a constituent are 0.01 - 10.00wt%)

B: Dimethylpolysiloxane (viscosity sets at 25 degrees C and the loadings in a constituent are 5.00 - 25.00wt% at 0.65-1,000,000cSt)

C: The hydrophobic ultrafine particle-like silica which carried out surface treatment with the organic silicon compound, and a hydrophilic ultrafine particle-like silica (the loadings in a constituent are 5.00 - 25.00wt%, and the loadings of a hydrophilic ultrafine particle-like silica are more than 1.00wt% at least)

D: Petroleum solvent (the loadings in a constituent are 40.00 - 89.99wt%)

[Claim 2] A publication carries out glazing for transparence gel automobiles to claim 1 whose pitch diameter of the primary particle of an ultrafine particle-like silica is 5nm - 12nm, and it is a water repellent constituent.

[Claim 3] the glazing for transparence gel automobiles according to claim 1 or 2 characterized by containing denaturation silicone oil (viscosity setting at 25 degrees C and the loadings in a constituent being 0.50 - 10.00wt% at 10-20,000cSt) -- carrying out -- a water repellent constituent.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Glazing of this invention is carried out to the automobile body, it gives effectiveness and water-repellent effectiveness, protects from the contamination by external factors, such as storm sewage and muddy water, aimed at making the fine sight of the automobile body improve or hold, carries out glazing for transparency gel automobiles, and is a water repellent constituent.

[0002]

[Description of the Prior Art] Glazing was carried out, grant of effectiveness and water-repellent effectiveness used the natural wax and the synthetic wax as the principal component, and the product to the conventional automobile body which blended various additives, such as dimethylpolysiloxane and fluoridation resin, with this has been used. Glazing is carried out, water repellent gives water repellence to gloss long-term on the automobile body, and a list, and in order to achieve such a purpose of protection of the automobile body, many products are marketed also for current. However, since the nature of these former from which water repellent serves as a principal component of polish by carrying out glazing, and a synthetic wax did not have transparency, the product containing waxes lacked in transparency naturally. For this reason, the user who uses car wax has had the prejudice of "what has" car wax opaque originally, and had the impression as for which the protective coating formed when these car wax is used also lacks in transparency.

[0003] Moreover, the polish which does not contain the raw material which spoils transparency, such as waxes, based on the above-mentioned circumstances is announced in the past (JP,6-57821,B). However, although it had transparency when this invention compared with the conventional car wax, the mean particle diameter of the hydrophobic particle-like silica currently used was as large as 13nm or more, and there was no sufficient transparency. Moreover, this invention was what attached importance to ***** of an object to the last, and the property of the indispensable water repellence or indispensable resistance to contamination as car wax did not appear notably, and it had not achieved sufficient function to use it as an object for automobiles. In addition, when this polish carried out long duration neglect under the elevated temperature, it had some which can say the syneresis neither as a lifting nor the stable constituent which becomes empty easily.

[0004]

[Means for Solving the Problem and its Function] It is what solved the above-mentioned technical problem, and this invention is characterized by containing following component A-D, carries out glazing for transparency gel automobiles, and is a water repellent constituent. A: Water-repellent resin (the loadings in a constituent are 0.01 - 10.00wt%) meltable to a petroleum solvent, B : dimethylpolysiloxane (viscosity sets at 25 degrees C by 0.65-1,000,000cSt) The hydrophobic ultrafine particle-like silica in which the loadings in a constituent carried out surface treatment with the C:organic silicon compound 5.00 - 25.00wt%, And an ultrafine-particle [hydrophilic]-like silica (the loadings in a constituent are 25.00[5.00 -] wt%, and the loadings of an ultrafine-particle [hydrophilic]-like silica are more than 1.00wt% at least), D: Petroleum solvent (the loadings in a constituent are 40.00 - 89.99wt%). the pitch diameter of the primary particle of this ultrafine particle-like silica is 5nm - 12nm -- desirable -- further - - this water repellent constituent -- denaturation silicone oil (viscosity sets at 25 degrees C and it is 10-20,000cSt) -- 0.50 - 10.00wt% -- you may make it contain

[0005] Petroleum system resin, silicone resin, etc. are mentioned, and water-repellent resin meltable to the petroleum solvent used by this invention is resin which does not spoil transparency in the system of this invention, also has the operation as a coat fixing reinforcement to a paint film, and serves to raise gloss and water-repellent endurance. As for the loadings in a constituent, it is desirable that it is 0.01 - 10.00wt%, and it is more desirable especially that it is 0.50 - 5.00wt%. If loadings are less than [0.01wt%], sufficient water-repellent effectiveness for the automobile body will not show up, but it will become that it is easy to be polluted with storm sewage, muddy water, etc. If loadings exceed 10.00wt(s)%, a protective coating becomes thick, nonuniformity will arise or a wiping activity will become difficult. A thing as shown below as an example is mentioned, and even if water-repellent resin meltable to the petroleum solvent used by this invention uses together a kind or two sorts or more of resin, it does not interfere.

[0006]

Petroleum system resin ADOTAKKU, a pico dyne, Peco Per, a pico tuck, the pico, PIKOMA, a HAKO tuck, high RETTSU, PETOROJIN, the tuck ace Product made from Mitsui Petrochemistry YS resin, chestnut ARON Yasuhara Chemical make Nippon Oil neo resin, a Nippon Oil neo polymer Product made from Nippon Oil Chemistry Pico light **** Hercules make TOHO high resin Toho Chemical Industry Co., Ltd. make Quinton Nippon Zeon Co., Ltd. make Mull KARETTSU Maruzen Petrochemical Co., Ltd. make EKORETTSU Product made from toe NEKKUSU [0007]

Silicone system resin KF-7312J Shin-Etsu Chemical Co., Ltd. make VP-1038 Product made from Wacker Chemicals yeast AJIA [0008] the dimethylpolysiloxane (viscosity sets at 25 degrees C and is 0.65-1,000,000cSt) used by this invention -- the system of this invention -- setting -- the oil absorption of hydrophobicity and a hydrophilic ultrafine particle-like silica -- adjusting -- the automobile body -- the need -- the operation which leaves sufficient dimethylpolysiloxane is carried out. Fascinating gloss appears in the automobile body by this, and improvement or maintenance of a fine sight is performed. As for the loadings of the dimethylpolysiloxane in a constituent, it is desirable that it is 5.00 - 25.00wt%, and it is more desirable especially that it is 10.00 - 20.00wt%. If loadings are less than [5.00wt%], it will not act enough as a modifier of the oil absorption of hydrophobicity and a hydrophilic ultrafine particle-like silica, and required sufficient dimethylpolysiloxane will not remain in the automobile body. If loadings exceed 30.00wt(s)%, the dimethylpolysiloxane beyond the need will remain in the automobile body, and a wiping activity will become difficult. A thing as shown below as an example is mentioned, and even if the dimethylpolysiloxane used by this invention uses together a kind or two sorts or more of dimethylpolysiloxane, it does not interfere.

[0009]

粘度 (c S t / 25 ° C)

K F - 9 6	0 . 6 5 ~ 1 , 0 0 0 , 0 0 0	信越化学工業 (株) 製
S H - 2 0 0	0 . 6 5 ~ 1 , 0 0 0 , 0 0 0	東レダウコーニング (株) 製

[0010] The ultrafine particle-like silica used by this invention is set in the system of this invention, commits the abrasive material at the time of wiping, and it acts so that easy wiping can be performed. Moreover, thickening of a system and gelation are performed taking advantage of the oil absorption property which an ultrafine particle-like silica has. At this time, the existence of the transparency of a constituent and the syneresis under an elevated temperature involves by the blending ratio of coal of hydrophobicity and a hydrophilic ultrafine particle-like silica. For example, when suitable amount use only of the hydrophobic ultrafine particle-like silica is carried out, the transparency of a constituent becomes the highest, but if long duration neglect is carried out under an elevated temperature, the syneresis of a constituent will arise. On the contrary, the transparency of a constituent will become low, although the syneresis of a constituent is not produced under an elevated temperature when suitable amount use only of the hydrophilic ultrafine particle-like silica is carried out. Therefore, in order [being good / for transparence gel automobiles] to carry out glazing and to obtain a water repellent constituent, it is optimal to carry out little addition of the hydrophilic ultrafine particle-like silica for the purpose of raising reservation and viscosity of the transparency of a system by the hydrophobic ultrafine particle-like silica, and preventing the syneresis of a constituent. As for these hydrophobicity in a constituent, and the loadings at the time of hydrophilic ultrafine particle-like silica mixing, it is desirable that it is 5.00 - 25.00wt%, and it is more desirable especially that it is 7.00 - 20.00wt%. 5. If it is less than

[00wt%], sufficient thickening and gelation will not be performed, but if long duration neglect is carried out under an elevated temperature, the syneresis will happen. Moreover, at the time of wiping, the polish force becomes weak, and a wiping activity becomes difficult. 25. If 00wt% is exceeded, viscosity will become high and churning of sufficient system and restoration to a container will no longer be performed. Moreover, at the time of wiping, it becomes chalky and wiping is not performed easily. A thing as shown below as an example is mentioned, and even if the ultrafine particle-like silica used by this invention uses together a kind or two sorts or more of ultrafine particle-like silicas, it does not interfere.

[0011]

一次粒子の平均径

疎水性

AEROSIL R976	7 nm	日本アエロシル (株) 製
AEROSIL R812	7 nm	

親水性

AEROSIL 300	7 nm
AEROSIL 380	7 nm

[0012] Alkyl denaturation, fluorine denaturation, mercapto denaturation, etc. are mentioned, and the denaturation silicone oil used by this invention commits surface treatment of an ultrafine particle-like silica in the system of this invention. The white dusting at the time of the constituent which this applied to the color card drying is suppressed, and a more effective wiping activity can be improved. As for the loadings of the denaturation silicone oil in a constituent, it is desirable that it is 0.50 - 10.00wt%, and it is more desirable especially that it is 1.00 - 5.00wt%. A thing as shown below as an example is mentioned, and even if the denaturation silicone oil used by this invention uses together a kind or two sorts or more of denaturation silicone oil, it does not interfere.

[0013]

変性基

SH-230	アルキル	東レダウコーニング (株) 製
X-22-330	、	信越化学工業 (株) 製
FS-1265	フッ素	東レダウコーニング (株) 製
X-22-819	、	信越化学工業 (株) 製
BY-16-838	メルカプト	東レダウコーニング (株) 製
X-22-980	、	信越化学工業 (株) 製

[0014] The petroleum solvent used by this invention carries out the operation which dissolves each combination component in homogeneity in the system of this invention. These solvents are volatile things and what is made into insurance and is generally used for the paint film as polish of an automobile is desirable. For example, industrial gasoline, a mineral spirit, a normal paraffin system, an isoparaffin system, a naphthene, an aromatic solvent, etc. are mentioned, and even if it uses together a kind or two sorts or more of petroleum solvents, it does not interfere.

[0015] In addition, this invention carries out glazing for transparence gel automobiles, and combination of various additives is also possible for a water repellent constituent if needed [, such as perfume, UV agent, and a pigment] to extent which does not affect transparency.

[0016]

[Working Example(s) and Comparative Example(s)] An example and the example of a comparison are shown below. Moreover, the property of the water-repellent resin mentioned as the example and a petroleum solvent is as follows.

撥水性樹脂	粘度(cSt)	
VP-1038	2000	
KF-7312J	75	
	軟化点(°C)	数平均分子量
ハイレッツG-100X	100	1250
マルカレッツS-100A	105	1100
石油系溶剤	アニリン点(°C)	初留点(°C)
シェルゾール70	77	156
ベガゾール3040	54	157
エクゾールD40	69	153
IPソルベント2028	86	205
日石アイソゾール300	80	170

[0017] An example 1, the example 1 of a comparison

	実施例1	比較例1-A	比較例1-B
KF-96(10,000cSt)	6.00	6.00	6.00
AEROSIL R812	5.00	4.00	20.00
AEROSIL 300	1.50	0.50	6.00
VP-1038	5.00	5.00	5.00
シェルゾール70	82.50	84.50	63.00
	100.00	100.00	100.00wt%

[0018] An example 2, the example 2 of a comparison

	実施例2	比較例2-A	比較例2-B
KF-96(5,000cSt)	12.00	12.00	12.00
SH-230(100cSt)	2.00	2.00	2.00
AEROSIL R976	11.00	13.00	—
AEROSIL 300	2.00	—	13.00
KF-7312J	2.30	2.30	2.30
ベガゾール3040	70.70	70.70	70.70
	100.00	100.00	100.00wt%

[0019] An example 3, the example 3 of a comparison

	実施例3	比較例3-A	比較例3-B
KF-96(20,000cSt)	15.00	2.00	10.00
SH-200(500cSt)	9.00	0.50	18.00
AEROSIL R812	20.00	20.00	20.00
AEROSIL 380	4.00	4.00	4.00
ハイレッツG-100X	7.50	7.50	7.50
エクゾールD40	44.50	66.00	40.50
	100.00	100.00	100.00wt%

[0020] An example 4, the example 4 of a comparison

	実施例4	比較例4-A	比較例4-B
SH-200(10,000cSt)	12.00	12.00	12.00
AEROSIL R976	11.50	11.50	11.50
AEROSIL 380	2.50	2.50	2.50
マルカレッツS-100A	2.50	—	11.00
IPソルベント2028	0.03	0.03	0.03
日石アイソゾール300	71.47	73.97	62.97
	100.00	100.00	100.00wt%

[0021] The stability test example of a constituent and the example of a comparison were respectively put into another reagent bottle, it put on the 50-degree C thermostat gently for two months, and the front face of a constituent was observed visually.

評価基準 ○：安定性が良い。
△：安定性にやや欠ける。
×：安定性が悪い。

[0022] As the transparency trial example and the example of a comparison were respectively put into another transparent reagent bottle and the height from a base was set to 5cm, the transparency of a constituent was observed visually.

評価基準 ○：極めて透明である。
△：概ね透明である。
×：不透明である。

[0023] It washed in workability trial 10 minutes, and the automobile body which is damp in water without water repellence was prepared. After the automobile body had got dry completely, the class product of an example and the example of a comparison was applied, and the commercial towel investigated the ease of a wiping activity.

評価基準 ○：容易に拭き取れる。
△：やや拭き取りにくい。
×：拭き取れない。

[0024] It washed in gloss trial 10 minutes, and the automobile body which is damp in water without water repellence was prepared. After the automobile body applied and wiped off the class product of an example and the example of a comparison in the condition of having got dry completely, the gloss of the automobile body was investigated by viewing and the tentacle.

評価基準 ○：目視により光沢が認められる。
△：触手により滑り性が認められる。
×：光沢、滑り性が認められない。

[0025] It washed in water-repellent durability trial 10 minutes, and the automobile body which is damp in water without water repellence was prepared. After the automobile body applied and wiped off the class product of an example and the example of a comparison in the condition of having got dry completely, the water repellence of the automobile body and durability were observed visually.

評価基準 ○：撥水性が良好で、持続性が長い。
△：撥水性が弱い。
×：撥水性がない。

	安定性	透明性	作業性	光沢性	撥水性
実施例 1	○	○	○	○	○
比較例 1 - A	×	○	○	○	○
比較例 1 - B	○	△	△	○	○
実施例 2	○	○	○	○	○
比較例 2 - A	△	○	○	○	○
比較例 2 - B	○	×	○	○	○
実施例 3	○	○	○	○	○
比較例 3 - A	○	○	△	△	○
比較例 3 - B	○	○	×	○	○
実施例 4	○	○	○	○	○
比較例 4 - A	○	○	○	○	×
[0026] Test result 比較例 4 - B	○	○	×	○	○

[0027] If there are too few loadings of an ultrafine particle-like silica like example of comparison 1-A, it will become the constituent which had a fluidity, without sufficient thickening effectiveness showing up. Although it becomes firm gel and stability is excellent when there are too many loadings of an ultrafine particle-like silica like example of comparison 1-B, transparency will become low or will become chalky at the time of wiping. When a system was made to thicken by a suitable quantity of the ultrafine particle-like silica like an example 1, moderate viscosity and moderate transparency were maintained and the result of having excelled also in which engine performance was shown.

[0028] If a system is made to thicken only by the hydrophobic ultrafine particle-like silica like example of comparison 2-A, although transparency is most excellent, the syneresis will happen a little. If a system is made to thicken only by the hydrophilic ultrafine particle-like silica like example of comparison 2-B, transparency will become low although the syneresis does not happen. When a system was made to thicken by the hydrophobicity of a suitable amount, and concomitant use of a hydrophilic ultrafine particle-like silica like an example 2, the syneresis of a constituent showed the result of having excelled also in which engine performance, without happening.

[0029] If there are too few loadings of dimethylpolysiloxane like example of comparison 3-A, sufficient gloss for the automobile body will not be acquired. If there is too much ***** of dimethylpolysiloxane like example of comparison 3-B, the dimethylpolysiloxane beyond the need will remain in the automobile body, there will be **** at the time of wiping, and an activity will not progress smoothly. When a suitable quantity of dimethylpolysiloxane was blended like an example 3, fascinating gloss remained in the automobile body and the result of having excelled also in which engine performance was shown.

[0030] Unless it blends petroleum system resin like example of comparison 4-A, sufficient water repellence for the automobile body is not acquired. If there are too many loadings of petroleum system resin like example of comparison 4-B, the fixing force of the protective coating to the automobile body will be too large, and a wiping activity will not progress smoothly. When a suitable quantity of petroleum system resin was blended like an example 4, moderate water repellence appeared in the automobile body, and the result of having excelled also in which engine performance was shown.

[0031]

[Effect of the Invention] This invention carries out glazing for automobiles, and it is transperence type gel polish with the water repellence which a water repellent constituent does not have in the conventional car wax, and is the constituent which was very excellent in stability, transparency, workability, glossiness, and water repellence.

[Translation done.]